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logical law, that the parts of flowers and the resulting seed vessels are metamorphosed leaves. In the case of these maples, the female trees, engaged in developing primordial leaves to perfect fruit, make few leaves in addition to those they started with in the spring, until, after several weeks, their fruitage has been completed. But the male flowers, dying immediately after perfecting their pollen, the male trees push into a heavy leaf growth, clothing the tree at a very early period with a dense foliage.

But another consideration intrudes itself here. The woody parts of a tree are made up mainly from the atmosphere through the medium of the leaves, and we may suppose that the greater the proportionate amount of leaves, the greater would be the woody product. Applying now these acknowledged principles to these maple trees, we find some remarkable results. Notwithstanding the male trees are relieved from the enormous strain on the powers of nutrition which the annual and often wonderfully heavy crops must entail; and notwithstanding they have, as in many cases this season especially, the advantage of a hundredfold more foliage at so early a period in the season, male trees are no larger, vigorous, or in any way more healthy than the female ones. In a crowded group of five trees, where a female tree is the central one, and a male on the outside, the male, with every advantage of food for the roots, and light and air for its large crop of leaves, and which happens to be an unusually large mass of foliage even for a maple tree, the girth of the trunk is four feet three inches, while the crowded female tree is five feet five inches, or two inches larger, with all its disadvantages.

We have been looking for weaker individuals in the male than in the female trees. But since he had first made his discoveries we have learned to distinguish much more clearly between vegetative and reproductive force. A large man is not necessarily a strong man in what we should call vital power; but we measure it by endurance under severe trials, and we see now that we need not have looked for weaker trees among the cedars or other diœcious trees, so much as for powers of endurance under reproductive or other essentially vital strains. Here we have this power thrown heavily in favor of the female tree; and he submitted that diœcism in trees instead of being an objection, is a powerful argument in favor of his views. [Verbal communication of Mr. Thomas Meehan to Acad. Nat. Sci. of Phila., June 4, 1878. From Proceedings, Part II.]

RECENT PUBLICATIONS.—*Forest Geography and Archæology*.—*A Lecture delivered before the Harvard University Natural History Society, April 13, 1878. By Asa Gray*.—In this masterly paper the author comes to the conclusion, fully corroborated by late geological discoveries in the arctic regions, "that the high, and not the low, latitudes must be assumed as the birth-place of our present flora; and the present arctic vegetation is best regarded as a derivative of the temperate." The distribution of forests is explained to be in accordance with the well known principles of physical geography, but no attempt is made to account for the anomalous features of the Pacific forest, as the author intimates it would lead simply to conjectures. The similarity between the vegetation of our own Atlantic slope, and that of the western coast of the Pacific, is well brought out and is so remarkable that Dr. Gray professes he will not be surprised to hear of a *Sarracenia* or *Dionœa* turning up in Eastern Asia. The object of the lecture was well accomplished in showing "that the races of trees, like the races of men, have come down to us through a pre-historic period; and that the explanation of the present condition is to be sought in the past, and traced in vestiges, and remains, and survivals; that for the vegetable kingdom also there is a veritable Archæology.

Report of the Botanist: [Chas. H. Peck.] Made to the Regents of the University of the State of New York. From the Thirtieth Annual Report.—The contents of this Report are best expressed by the summary given by the author himself. Suffice it to

say, that Dr. Peck is a most indefatigable worker among our fungi and it almost seems probable that his name will be appended to as many North American fungi as that of Linnæus to our phænogams. Since the date of the last report, specimens of 165 species of plants have been mounted and placed in the Herbarium, of which 130 were not before represented in it. Specimens have been collected in the counties of Albany, Essex, Greene, Hamilton, Otsego, Rensselaer and Saratoga. These represent 132 species new to the Herbarium, 129 of which are fungi, of these 60 are regarded as new or previously undescribed species. Of course the new species are described and some of them figured in the two plates at the end of the report.

Contributions to the Flora of Iowa—No. III. By J. C. Arthur.—The author adds some 65 species to his catalogue of the Iowa flora and also describes three not found in Gray's Manual, viz.: *Desmodium Illinoense*, Gray, *Scutellaria parvula*, Mx., var. *mollis*, Gray, and *Echinosperrum deflexum*, Lehm. *Anarantus Blitum* (No. 668) of the catalogue proves to be *A. blitoides* of Watson, a description of which is appended; and *Aster Novi-Belgii* (No. 371) is to be stricken out.

The Pine, its life and importance in Essex County. By John Robinson.—A good description is given of the life of a pine, commencing with the seed, then follows an account of the Conifers found growing in Essex County, Mass. There are 10 of them, viz.: *Pinus rigida*, *P. resinosa*, *P. Strobus*, *Abies nigra*, *A. Canadensis*, *Larix Americana*, *Cupressus thyoides*, *Juniperus communis*, *J. Virginica*, and *Taxus baccata*, var. *Canadensis*.

Science News, Vol. 1, Nos. 1 & 2, November 1 & 15.—We have here a new candidate for public favor, published by S. E. Cassino, under the editorial management of Ernest Ingersoll and Wm. C. Wyckoff, of New York. It is a semi-monthly periodical of 16 pages, octavo, printed in two columns, and is furnished at \$2.00 per annum. According to the salutatory address "To the Public," its object is a most general one, namely, to advance the interests of science. It promises to give prompt publication of scientific news in every department of science, and especially in that of natural history and biology. The first two numbers carry out very well the promise of the editors, and from the prominent names enrolled among the contributors subscribers can undoubtedly expect more than the worth of their money. We wish the new enterprise every success, and that it may accomplish what many scientific publications of to-day do not, that is, pay its way. We might express the wish that the paper at first sight did not so much resemble an advertising sheet, but the turning over of a few pages reveals the substance within.

Bulletin of the Torrey Botanical Club, Oct.—Prof. Eaton announces that four new species of tropical ferns have been recently discovered in Florida, one by Dr. Garber, one by Mr. A. H. Curtiss, and two by Mr. W. H. Shockley. They are *Ceratopteris thalictroides*, Brongniart, *Cheilanthes microphylla*, Swartz, *Aplenium firmum*, Kunze, and *A. cicutarium*, Swartz. Mr. Meelian writes that the *Colluma vulgaris* reported as growing two miles from Egg Harbor City, New Jersey, is not indigenous at all, but was planted there by a man from England. He thinks that the other reported localities had better be more thoroughly examined. Mr. J. W. Congdon makes the very flattering announcement that *Shortia galacifolia*, Gray, has been discovered by Mr. M. E. Hyams, of Statesville, N. C. It was found last year in McDowell & Co., N. C. The plant is so rare that heretofore only one known specimen existed, and that was at the Jardin des Plantes, in Mvchaux's herbarium.

The American Naturalist, Nov.—This number is especially rich in botanical articles, containing no less than three, besides the general notes. They are "*Aspidium spinulosum* (Swartz) and its Varieties," by Geo. E. Davenport; "On the Natrnl Succession of the Dicotyl dens," by Lester F. Ward; and "About Weeds," by W. W. Bailey. Mr.

Davenport, after a study of *aspidium spinulosum* and its varieties, comes to the conclusion that the varieties included under the *intermedium* and *Boottii* are entitled to specific rank. The latter he accordingly restores to specific rank as *A. Boottii*, Tuckerman, but the former cannot be called *A. intermedium*, Willd., for that name has been wrongly applied to our plant, and Willdenough's description has nothing to do with the form in question, but with *A. spinulosum*. This leaving no name for our American form, Mr. Davenport gives the name *A. Americanum*. Mention is made in the general notes of a new classification of the Vegetable Kingdom proposed by Prof. Carnel, of Pisca, in his recent work *La Morfologia Vegetale*. He proposes to divide it into five primary groups, namely: 1. *Phanerogamia*; 2, *Schistogamia*, including *Characeæ* only; 3, *Prothallogamia*, or Vascular Cryptograms; 4, *Bryogamia* (synonymous with *Muscineæ*); and 5, *Gymnogamia* (Thallophyta or Cellular Cryptograms).

—A curious result of the effects of sharp frost is noted by a correspondent of *The London Gardeners Chronicle*. Polyanthus flowers of very deep crimson hues, especially those approaching to black, presented an appearance as if scorched, while those of light colors were comparatively uninjured. Early primroses in the open ground showed the same peculiarity.

—The Iowa Agricultural College Quarterly cites census statistics of 1875, showing that the area of natural forest in that State is but $6\frac{1}{2}$ per cent. of the whole surface, and that fully half of all the trees are along the Des Moines River. Up to the date named the woodlands had been increased artificially one thirty-third.

—According to *Revue Horticole*, the Dutch protect fruit blossoms from untimely frost by placing vessels of water at the base of the tree or plant, taking care to remove ice if any forms. Doubtful as the plan appears, it is said to be more efficient than coverings of canvas or branches.

—A gardener in England removes green algal and confervoid growth from damp walls, and keeps it down a year or longer by painting with a solution of chloride of lime. The same application is made to gravel walks with a watering-pot, with equally satisfactory results.

—Among noteworthy specimens seen at the recent Edinburg Fungus Show was a *Polyporus giganteus*, three feet six inches in diameter, and a puff-bail (*Lycoperdon giganteum*), fifty-four inches in circumference and weighing twenty pounds.

—An old record refers to a plant of China-grass (*Bæhmeria nivea*) which, sent from England to the island of Jamaica in 1854, attained a height of six feet in fourteen days.—*N. Y. Times*.

PROSPECTUS.—With this number we close the third volume of the BOTANICAL GAZETTE. We enter upon Volume IV. with a greater feeling of stability than ever before, and with the hope that the support of the coming year will put all questions of the permanency of the journal far out of sight. In three years we have established such a patronage and position that the GAZETTE should command the confidence and energetic support of all botanists. If such will be given we can promise much greater things. We have been urged to raise the subscription price, but have concluded to keep it at its present rate, at least, for the coming year, hoping that we will obtain subscribers enough to justify us. We hope to have the continued support of the leading botanists of the country, and can promise to subscribers the very best botanical matter that can be procured for a journal of such limited capacity. We would also call attention to our rates of advertisement, and hope that the patrons of the GAZETTE who have anything pertaining to botany to sell, exchange, or procure, will make use of its columns. Subscriptions and articles should be sent in at once, that the work of the coming year may be fairly before us.—EDS.